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STATE OF ISRAEL

ARMED ISRAELI FARMER near the Dead Sea plows a future for his growing nation

► Israel Marks Its 10th Birthday
► Challenge of the Negev
► Ice Hockey—Canada's Sizzling Sport
► Bristlecone, the Oldest Tree of All
► Britain's Pastoral Channel Islands

UMI

STATE OF ISRAEL

ISRAEL'S ARAB neighbors pat fat coffers of oil wealth. But the nation in their midst has other practical assets—the zeal of pioneers and a widely respected army of smart, well-armed young men like this infantryman, originally from India.

Every young Israeli, man and unmarried woman alike, serves in this crack citizen's army. They have made it possible for Israel to hold on, then to prosper. And they don't intend to let go.

rejoices without wondering what Israel's Arab neighbors think of the festivities. Arab opposition has gathered new force with recent alignment of Syria, Egypt, and Yemen into one nation, the United Arab Republic, followed by the federation of Jordan and Iraq (GSB, March 3, 1958).

Medieval maps often centered on the Holy Land—the middle of the world. Today that position causes some claustrophobia. The Israelis see themselves hemmed in by Arabs on the one hand, by the Mediterranean on the other. The rest of the world sees the region as a fuse for world conflict that has been sputtering for years. Yet some 140,000 Moslems continue to live peacefully in Israel.

Smaller than Massachusetts, Israel shares with Egypt a UN-patrolled, 135-mile border along harsh Sinai, the immemorial bridge between Asia and Africa. Its western frontier curves with the Mediterranean. Northern reaches rub more friendly Lebanon, less friendly Syria, pressing on the Sea of Galilee. From those waters, hallowed by Biblical reference, Israel's long eastern frontier with Jordan extends scythelike southward to the Gulf of 'Aqaba.

For Israel, population outstrips the area. Some 250 persons crowd each square mile. Many trooped in from Yemen, Iraq, and Turkey. The cotton picker, right, is originally from North Africa. They form a melting pot like New York's a century ago. Late-comers find life far better than the earlier Israel pioneers, who literally scratched a living in American pioneering fashion. Homeseekers now look awe-struck upon an Asian state with a Western outlook and appearance. Apartment structures, street

EFREM ILANI

traffic, industries mimic Western Europe and the United States. Furniture, food, metal goods, and clothing keep pace with population increases. Into export flow automobiles, precision instruments, drugs, radios, refrigerators, textiles. Diamond cutting and polishing rank high among native skills.

Jerusalem, Israel's capital, flourishes

UMI

ISRAEL

EWING GALLOWAY

YOUNG, lusty Israel bakes a birthday cake with 10 candles. Israelis rejoice at a decade of nationhood, the fulfillment of an ages-old dream of a homeland for the world's Jews in the very land of milk and honey that their ancestors lost. Israel's milestone mutely tells of early national strife, perseverance, and phenomenal growth at a dangerous crossroads. There, 2,000,000 inhabitants from 60 countries shape one nation. Their descent on Israel doubled the land's population before five years passed. Gold, historic mover of men, was no influence. Israel beckoned with a warmer golden gleam—a light to guide millions home.

But scarcely a man from fertile Moreh Plain (above) to bustling Tel Aviv now

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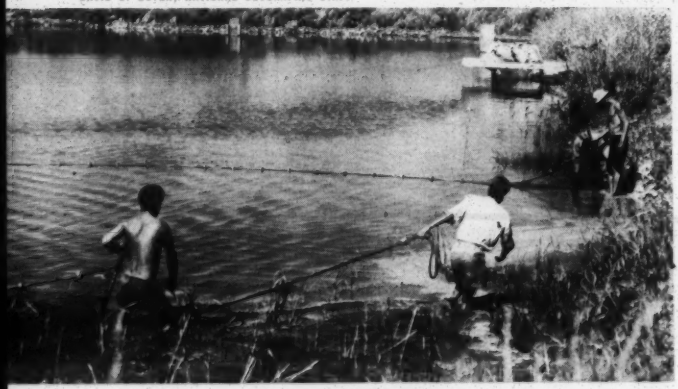
Use of Jordan water adds to Arab-Israeli tensions. Jordan protested when Israel planned to tap the river north of the Sea of Galilee, thus diminishing the flow through Jordan. Now Jordanians plan to channel off some of the Yarmuk, a big tributary. Fearing for its precious flow of Jordan water, Israelis threaten to renew their original scheme.

Despite such disputes, personal relations between Jews and Arabs are often surprisingly friendly. When an Israeli surveyor and his burnoosed Lebanese counterpart, above, discuss a minor border problem in perfect amity, it's nothing new.

Israel's presses issue nearly 1,000 books a year. Per capita reading is second only to New Zealand's. World audiences have acclaimed the Israel Philharmonic Orchestra. Festivals and folk dancing, a national opera, and painters express the spirit of a people building new futures upon once-crumpled hearthstones of ancient forebears.

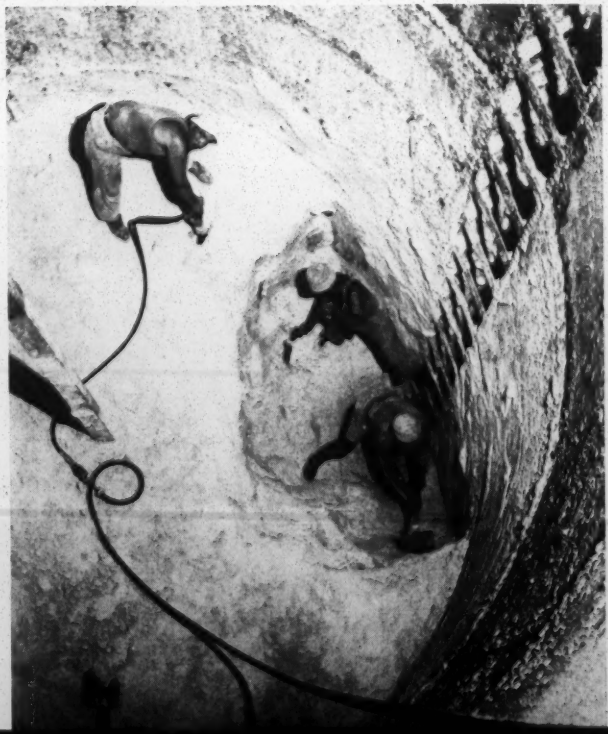
S.H.

DAVID S. BOYER, NATIONAL GEOGRAPHIC STAFF



ISRAEL leans heavily on several thousand co-operatives—enterprises owned by members. A fishermen's co-op (left) drags a seine from an artificial lake in the region of Galilee.

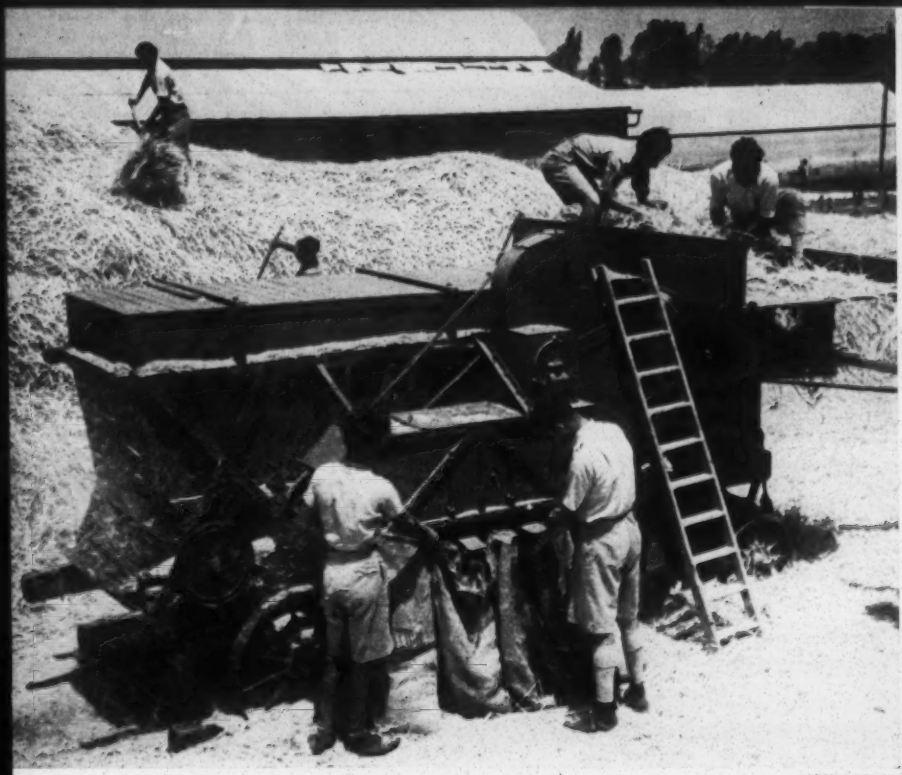
UNITED PRESS



ISRAEL has yet to plumb fully its mineral resources. But already mining is bringing the bleakly-named Dead Sea to life. This strange geographical sinkhole 1,300 feet below sea level, where temperatures flirt with 120 degrees, ranks among the world's richest repositories of chemicals.

Miners, such as those at right, dig for magnesium, potash for much-needed fertilizer, bromine, and other salts.

A new highway carries produce to booming Beersheba.



YARDENA BEN DOR

on some 50 factories. City craftsmen make ceramics, embroideries, and wooden objects. Gray and pink stone buildings mushroom into suburbs, needed because Jerusalem has more than doubled since Israel's statehood.

Tel Aviv, midway along Israel's coast, was founded only in 1909 but holds most industries, ranks as the Near East's most modern metropolis. Most heavy industries operate in more northerly Haifa, seat of large oil refineries. Discovery of oil in the region of Galilee may help relieve Israel of expensive fuel imports.

A fourth of Israel's people lean on manufacturing and service industries. Other thousands till the soil for grains, vegetables, and fruits to the sound of modern farm machinery (see cover). The government seeks higher output. Farming areas doubled during the first five years. Agricultural schools give the latest practical training. Students, above, learn machine threshing at Tulkarm in the north. The Philistine plain hums with scores of *kubbutzim* (collective farms), Galilee's slopes have been reclaimed from sun-withered barrenness. Beersheba booms as an outlet for the southern agricultural region.

Yet Israel still imports much of its food. Lack of water is largely to blame. Most comes from neighboring lands. The revered Jordan flows for only 73 miles through Israel—about half of its length—before emptying into the Dead Sea. So Israel presses a program of irrigation.

GEORGE PICKOW, THREE LIONS

DICK DARCEY, WASHINGTON POST AND TIMES HERALD

HOTTEST THING ON ICE

BASEBALL addicts, impatient for their season to get under way, are often annoyed at this time of year by the persistence of an event known as the Stanley Cup play-offs. To North America's hockey fans, the play-offs, marking season's end, arrive too soon. Every early spring the faithful stand and shout as rugged young professionals with sharp skates, taped sticks, bulging pads, and scarred faces battle out the complex tournament that decides the continental championship.

Ice hockey is as much a product of Canada as cold weather. And just as the latter sweeps across the United States border—even in March—so the former captured hearts in Boston, New York, Chicago, and Detroit. In that order those cities joined Toronto and Montreal in Canada's National Hockey League. Other United States cities such as Washington and Philadelphia (fighting it out, above) formed other leagues.

Like baseball, hockey's beginnings are in dispute. McGill University students played it on the frozen St. Lawrence in the 1870's, using brooms and canes to bat a rubber ball. Since the ball frequently bounded away, one player sliced it so it would slide on a flat surface. Presto—the puck was born. Now standardized with a three-inch diameter, pucks can travel 90 miles an hour. Few spectators care to catch a wild shot.

Quickly becoming Canada's national game, hockey remained strictly amateur until 1908 when the N.H.L. was organized as an all-professional group. Not until the 1925-26 season did Boston break into the league. Canadian players have traveled far, teaching and coaching their invention. More than a dozen nations including the United States and the Soviet Union entered last month's world championships at Oslo, Norway.

ISRAEL TURNS TO ITS BLEAK NEGEV

EFREM ILANI

CULTIVATING a patch of Negev, an Israeli farmer hopes to turn it green with date palms

EVERYWHERE pioneering Israelis looked, one word dogged their minds: *challenge*. The greatest test beckoned across the Negev, the south country. This 5,000-square-mile triangular-shaped area thrusts southward between Jordan and Egypt's Sinai—a desert barrier walling off Arab peoples.

Just wilderness . . . a desolate area of forbidding mountains, ravines, and withered plains, men had called it for years. Israelis grabbed at the challenge, of necessity. The Negev is more than half of their land. It holds most of the nation's modest mineral deposits and promises some wealth in chemicals.

It opens arms now to nearly half of Israel's home-seeking immigrants. From Beersheba, Israeli pioneers troop into the Bedouin shepherd stronghold, planting colonies, reclaiming land. Eilat, on the Gulf of 'Aqaba, throbs as a port opening to Africa and Asia. A new highway links the port with Beersheba. Plans envisage a chain of small industrial towns across the region, from Mediterranean to Dead Sea and southward to Eilat. More than 50 interlocking farm villages now mushroom in the short-grass northern area of the Negev. Combinations of irrigation and dry land farming (above) help produce cotton, peanuts, grains, and sugar beets in otherwise long-neglected Negev areas.

Beersheba, whose wells refreshed flocks of Jacob, Abraham, and Isaac, has leaped in growth of from 6,000 to 35,000 in nine years, indicating the bustle into a land once termed practically useless. Age-old calm changes to industrial hubbub. One ceramics factory uses Negev clays—an example of how Israelis are feeding upon the one-time wasteland. S.H.

National Geographic References: ***Map***—Lands of the Bible Today (paper, 75¢; fabric, $1.50). ***Magazine***—December 1957, "Bringing Old Testament Times to Life" ($1.00). ***School Bulletins***—April 30, 1956, "A New Israel in Old Surroundings" (out of print); April 4, 1955, "Border Patrols Make Way for Easter" (10¢).

March, 1958, *National Geographic Magazine*. He told how he and a fellow teacher noticed stoop-shouldered bristlecones growing 10,000 feet high in Inyo National Forest in California's White Mountains, near the Nevada State border, east of Yosemite.

Dr. Schulman knew they were old. But how old? To find out, he donned heavy hiking shoes, strapped a canteen around his waist, and picked up his Swedish borer, an ingenious instrument which bites a deep, narrow cylindrical core to the heart of a tree trunk. By comparing growth rings in the cores of neighboring trees and matching rings with known periods of drought, scientists can tell a tree's history.

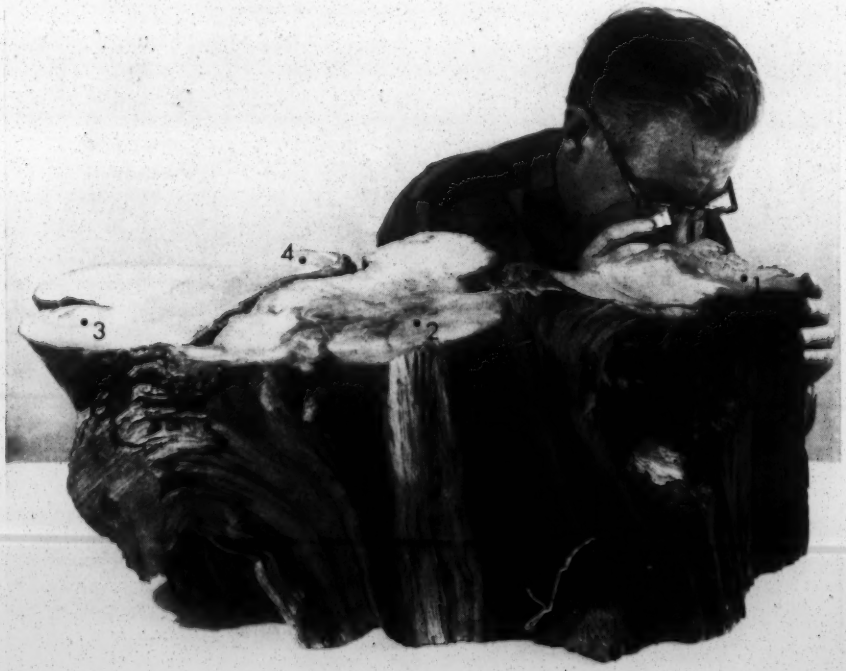
One night, Dr. Schulman examined the core his assistant had extracted from the gnarled bristlecone shown above. In earlier samples, the heart of the trunk had eroded away, leaving the tree's early growth a mystery. This one was perfect. One thousand, two, three thousand years fairly flew by beneath his moving finger. "Four thousand years!" he shouted. "A perfect sample."

Thus came the discovery of the oldest tree—actually the oldest living thing on earth, as far as anyone knows. The bristlecone antedates the Douglas fir, western juniper, piñon pine, and cypress. Its life span surpasses even the famous sequoia of California.

But deep-rooted, valley-growing sequoias have a greater *potential* life span. Some will be growing in 5,000 A.D., long after scrabbling, mountainside bristlecones finally give up the ghost. A.P.M.

MULTIPLE STEMS show in cross section. Tree began life as sapling at Point 1 about 2,000 B.C. By 500 B.C., while Darius was mobilizing to fight the Greeks, another stem had grown at Point 2. Another grew later at Point 3, where ring is precisely dated at A.D. 828. Point 4 is growth to 1957, year of cutting.

TREE-RING LABORATORY



UMI

Meet Rip Van Winkle of the Woods

W. ROBERT MOORE, NATIONAL GEOGRAPHIC STAFF

The Bristlecone Pine Has Dozed Through 4,000 Years

FAR IN the misty past, at the time Hammurabi was giving the first code of law to the people of Babylon, the venerable tree at left sank tender roots in the unfriendly soil. By the time Troy fell to the Greeks —1184 B.C. according to Homer —this granddaddy of all living things held itself erect on a three-inch-thick trunk, bony fingers reaching skyward. This is California's bristlecone pine whose long comradeship with history has recently been discovered.

Patriarch of the forest, the bristlecone has lived to such ripe age despite great adversity. An upper-timberline tree, it grows not in rich soil but in rocky wilderness. It requires a minimum of moisture, hoards sap greedily within its shaggy trunk.

The bristlecone can shut up shop almost entirely during a drought, producing none of its bristle-tipped cones and laying down no rings except on narrow strips of stem. Denied spurts of youthful growth that build lowland trees, it painstakingly adds barely an inch of girth in a century.

Pine Alpha, left, was the first bristlecone to be certified as more than 4,000 years old. It stands in "Methuselah Walk," a corridor of living trees as old as the pyramids.

THE amazing secret of the gnarled old bristlecones was unlocked by a man who specialized in reading history in the rings of a tree.

The late Dr. Edmund Schulman, below, was associate professor of dendrochronology (tree history) at the University of Arizona. His science springs from the research of Arizona's Dr. A. E. Douglass who found that certain trees have rings of varied width caused by wet and dry years. Dr. Douglass led three National Geographic Society expeditions in the 1920's that dated, with tree ring chronology, the pre-Columbian Indian village of Pueblo Bonito in New Mexico.

Dr. Schulman applied this science to make the discovery he described in the

Lumped into one land mass, the islands would fill about one twentieth of Long Island's area. Jersey and Guernsey are the two largest chunks. Together with wave-lashed Alderney and its small offshoot, Burhou, they form a triangle. Little Sark sits in the middle along with tiny Herm, Jethou, and Brechou. Scattered reefs and shoals surround each inhabited spot.

Some 100,000 islanders, crammed into these green plots, utilize every natural asset, every inch of land, to find a living. Farms seldom fill more than five acres apiece, but old, careful methods allow their produce to compete successfully on the English markets. Mild winters work for the farmers. To augment the happy climate, innumerable glass houses have sprouted—so many that the land, seen from the air, seems to glitter and wink as though half flooded.

Fine tomatoes, hothouse grapes, and other fruits and vegetables thrive on island soil. Jersey cabbage shoots up 10 to 15 feet high. The stalks are varnished and sold as souvenir canes.

There are plenty of buyers, for the Channel Islands do a land-office business in vacation time. Thousands of British families make the short trip to the balmy isles, a part of their homeland, yet so strangely foreign in custom and often in speech. French remains an official language of Jersey. And an old Norman dialect may still be heard in the countryside.

Stout individualists, the islanders consider themselves Jerseymen or Guernseymen first. Those two major groups were bitterly split over the British Civil War of the 17th century and only buried the hatchet when World War I gave them a common cause. The islands have their own form of representative government and are not affected by British Parliament unless some act specifically includes them.

Sark retains a feudal flavor. Its seigneur or his dame still receives token "tithes" or contributions from tenants. When the present *Dame de Sercq* forbids the import of cars, female dogs, and pigeons, she is only exercising her traditional right. Sark's parliament, the Chief Pleas, is presided over by a Seneschal, an official straight out of "Robin Hood."

MIGRANT workers (those at right are from Brittany) often help harvest Jersey's big potato crop. Some fields, nourished by seaweed, have yielded potatoes every year for half a century.

Knitting added to Jersey's fame in former times. The garments knitted by Jersey wives carried the island's name around the world. Knitting grew so profitable that men neglected farming and learned to ply needles.

Sir George Carteret, member of an important Jersey family, backed the Stuarts during Britain's struggle between King and Parliament. Later he was granted land in America which he named New Jersey.

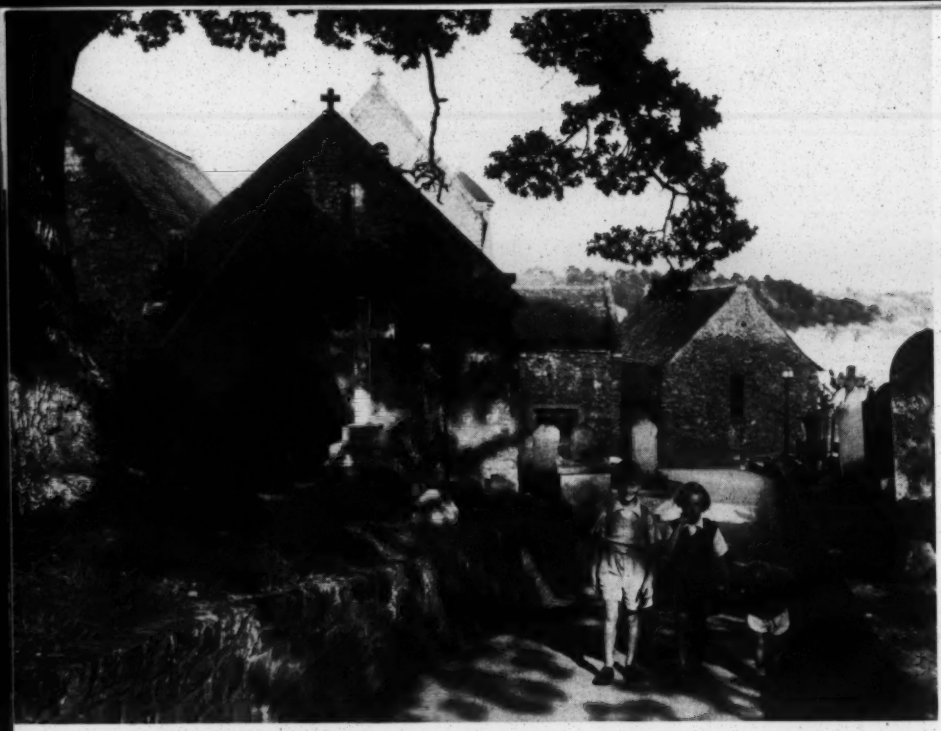
THOUSANDS of farm boys know the names of the two largest Channel Islands without realizing it. Wherever placid, dappled Guernsey cows graze, or soft-eyed, fawn-colored Jerseys (right) chew their cuds, the international impact of Britain's baby isles is felt. Dairy cattle make up an impressive array of four-legged, blue-blooded Channel Islands immigrants to farms all over the world. Americans have gulped small oceans of milk from some half million Guernseys and thousands of Jerseys since these breeds arrived a century ago.

Photographs by Howell Walker, National Geographic Staff

'Gardens of the Sea'

"BITS of France fallen into the sea and picked up by England." Thus the French author, Victor Hugo, described the Channel Islands. Geographically, he was right. The eight islands of the group scatter just off the west coast of the Cotentin Peninsula, the appendage of Normandy that juts like the spout of a tea kettle into the English Channel. Alderney, the island nearest to both France and England, is only nine miles from the former, some 60 from the latter.

Originally Norman, the islands were an offshore bastion of the Dukes of Normandy. In the 10th century they started building Mont Orgueil Castle, below, at Gorey, on Jersey's east coast. Then one Norman ruler, William the Conqueror, seized the English throne, uniting Normandy and England. The mainland of Normandy eventually reverted to France. The Channel Islands stayed with England —the crown's oldest dependencies. During World War II an officer of the German occupying force asked a Channel Islander how long his home had been ruled by Britain. "We conquered England in 1066," was the doughty reply.



Medievalism Flavors Jersey Customs and Scenes

Since World War II's end, the Channel Islands have been rebuilding the pastoral, quietly profitable way of life that five years of German occupation left neglected and often ruined. Cattle shows have resumed in open pastures. Aristocratic cows graze haphazardly, tethered to stakes. When grass thins in one spot, a farm woman with a mighty mallet (right) bashes the stake into a new plot—and the Guernsey or Jersey never misses a mouthful.

Island breeders say the famed bloodlines of record-breaking dairy cows all over the world can only be maintained by adding fresh strains from the island herds.

Cattle abound wherever there is grass and one lure to vacationists is the prospect of quantities of fresh milk. Milk-haters too flock to the Channel Islands to absorb their undisturbed peace, their freedom from traffic, neon lights, and noise, their placid scenery, changing from island to island.

Guernsey has a coast made rugged by lichen-covered rocks. Jersey slopes from northern cliffs, spectacularly high, to broad southern beaches. Wooded valleys slice this incline. In these dales a church may suddenly appear (above) with 11th century features.

Sark combines the beauties of the larger two. Alderney seems a sea-girt pasture, almost treeless.

Victor Hugo, living on Guernsey while he wrote "Les Miserables," coined another description of the islands—"the gardens of the sea."